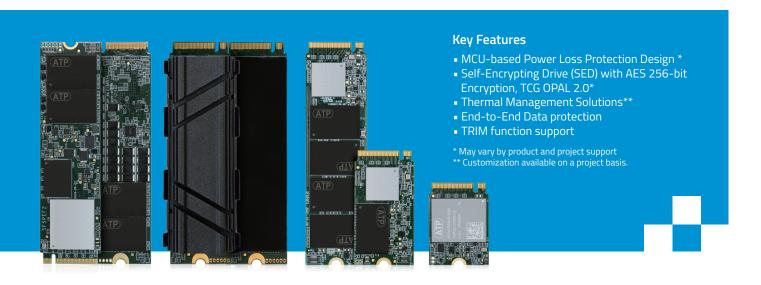


## M.2 NVMe

Targeted Product Portfolio, Engineered Specifically for Your Mission Critical Applications



M.2 solid state modules based on the NVMe™protocol leverage the blazing-fast PCI Express® (PCIe®) interface to deliver dramatic improvements in speed and performance to fulfill the increasing demand for responsiveness in enterprise storage systems and to support the growing data-hungry needs of today's enterprise. Delivering 32 Gb/s bandwidth on a PCIe 3.1 x4 slot (8 Gb/s per lane), ATP NVMe SSDs outperform Serial ATA 6 Gb/s SSDs with 4-6X faster access, over 3X lower latency, and higher Input/Output per Second (IOPS). ATP NVMe SSDs with industrial operating temperature rating deliver stable performance even in extreme temperatures ranging from -40°C to 85°C, while Dynamic Thermal Throttling automatically adjusts the speed to maintain cooler operation under intense and heavy workloads.

Adopting NVMe 1.3 specifications and integrating 3D NAND TLC technology, ATP's M.2 2280 NVMe modules offer up to 1.92TB of storage capacity and deliver boosted performance with sequential read up to 3,420 MB/s, sequential write up to 3,050 MB/s, and random read/write IOPS up to 225,200/179,200.

Designed to move past the limitations of mechanical drives, NVMe was specifically built from the ground up for faster, more efficient access to storage devices with non-volatile memory such as current NAND flash solutions and future non-volatile memory technologies. These SSDs can deliver fast, reliable and durable performance for any demanding application.

## Specifications

			M.2 NVMe						
	Pren	nium	Superior						
Product Line	N750Pi	N700Pi	N700Si	N700Sc	N650Si	N650Sc			
Interface			PCIe G3 x4		·				
Flash Type	3D TLC (ps	SLC mode)	3D TLC (pSI	LC mode)	3D TLC				
Form Factor	M.2 228	80-D2-M	M.2 2230	)-S4-M	M.2 2280-D2-M				
Operating Temperature (Tcase) <sup>1</sup>	-40°C t	o 85°C	-40°C to 85°C	0°C to 70°C	-40°C to 85°C	0°C to 70°C			
Power Loss Protection Options	Hardware +	Firmware Based	Firmware	Based	Hardware + Firmware Based or Firmware Base				
Optional SED Features		AES 256	6-bit Encryption, TCG Opal	1 2.0					
Capacity	40 GB to 320 GB	40 GB to 640 GB	40 GB / 80 GB	3 / 160 GB 120 GB to 960 GB					
			Performance						
Sequential Read (MB/s) up to	3,150		2,000	0	3,420				
Sequential Write (MB/s) up to	2,670	2,820	1,600		3,050				
Random Reads IOPS up to	147,789 (	(4K, QD32)	135,600 (	4K, QD32)	222,700 (4K, QD32)				
Random Writes IOPS up to	114,227	(4K, QD32)	112,000 (	4K, QD32)	176,60	0 (4K, QD32)			
		E	ndurance and Reliability						
Endurance (TBW) <sup>2</sup> up to	16,000 TB	21,300 TB	4,280 TB		4,640 TB				
Reliability MTBF @ 25°C	>2,000,0	000 hours	>1,500,000 hours		>2,000,000 hours				
			Others						
Dimensions: L x W x H (mm)		1.2 2280 Bare PCBA) 2280 with 8 mm heatsink)	30.0 x 22.0 x 2.5		80.0 x 22.0 x 3.5 (M.2 2280 Bare PCBA) 80.0 x 24.4 x 12.5 (M.2 2280 with 8 mm heatsink				
Certifications		CE, FCC	, BSMI, UKCA, RoHS, REAC	Н					
Warranty	5 years 2				years				
			M.2 NVMe						
	C	uperior	Value						
Product Line	N600Si	N600Sc	N600Vc	N600Vc	N600Vi	N600Vc			
Interface			PCIe G3 x4						
Flash Type	3D.	TLC	3D TLC		3D TLC (TLC Mode)				
Form Factor	M.2 228	80-D2-M	M.2 2280 S2-M M.2 2242 D5-M		M.2 2230-S4-M				
Operating Temperature (Tcase) <sup>1</sup>	-40°C to 85°C	0°C to 70°C	0°C to 70°C		-40°C to 85°C	0°C to 70°C			
Power Loss Protection Options	Hardware + Firmware B		Firmware Based						
	Haldwale + Hilliwale Di	ased or Firmware Based		Firmwa	are Based				
Optional SED Features		ased or Firmware Based yption, TCG Opal 2.0		Firmwa	are Based -				
·	AES 256-bit Encr		120 GB to		are Based - 120GB / 240	GB / 480GB			
Optional SED Features	AES 256-bit Encr	yption, TCG Opal 2.0	120 GB to Performance		-	GB / 480GB			
Optional SED Features	AES 256-bit Encr 120 GB to	yption, TCG Opal 2.0		960 GB	- 120GB / 240	GB / 480GB 000			
Optional SED Features Capacity Sequential Read	AES 256-bit Encr 120 GB to 3,	yption, TCG Opal 2.0 o 1,920 GB	Performance	960 GB	- 120GB / 240 2,				
Optional SED Features Capacity  Sequential Read (MB/s) up to Sequential Write	AES 256-bit Encr 120 GB to 3,	yption, TCG Opal 2.0 o 1,920 GB 420	Performance 2,60	960 GB 00 70	- 120GB / 240 2,	000			
Optional SED Features Capacity  Sequential Read (MB/s) up to Sequential Write (MB/s) up to	AES 256-bit Encr 120 GB to 3, 3, 225,20	yption, TCG Opal 2.0 o 1,920 GB 420	Performance 2,600	960 GB 00 70 K, QD32)	- 120GB / 240 2, 1, 135,600	000 570			
Optional SED Features Capacity  Sequential Read (MB/s) up to Sequential Write (MB/s) up to Random Reads IOPS up to	AES 256-bit Encr 120 GB to 3, 3, 225,20	yption, TCG Opal 2.0 o 1,920 GB 420 050 0 (4K, QD32) o (4K, QD32)	Performance 2,60 1,87 184,300 (4	960 GB 00 70 K, QD32)	- 120GB / 240 2, 1, 135,600	000 570 (4K, QD32)			
Optional SED Features Capacity  Sequential Read (MB/s) up to Sequential Write (MB/s) up to Random Reads IOPS up to Random Writes IOPS up to	AES 256-bit Encr 120 GB to 3, 3, 225,20 179,20	yption, TCG Opal 2.0 o 1,920 GB 420 050 o (4K, QD32) o (4K, QD32)	Performance 2,60 1,87 184,300 (4 145,900 (4 ndurance and Reliability	960 GB 00 70 K, QD32) K, QD32)	- 120GB / 240 2, 1, 135,600 112,000	000 570 (4K, QD32)			
Optional SED Features Capacity  Sequential Read (MB/s) up to Sequential Write (MB/s) up to Random Reads IOPS up to Random Writes IOPS up to	AES 256-bit Encr 120 GB to 3, 3, 225,20 179,20	yption, TCG Opal 2.0 o 1,920 GB 420 050 o (4K, QD32) o (4K, QD32) Er	Performance 2,60 1,87 184,300 (4 145,900 (4 ndurance and Reliability 1,536	960 GB 00 70 K, QD32) K, QD32)	- 120GB / 240 2, 1, 135,600 112,000	000 570 (4К, QD32) (4К, QD32)			
Optional SED Features Capacity  Sequential Read (MB/s) up to Sequential Write (MB/s) up to Random Reads IOPS up to Random Writes IOPS up to	AES 256-bit Encr 120 GB to 3, 3, 225,20 179,20	yption, TCG Opal 2.0 o 1,920 GB 420 050 o (4K, QD32) o (4K, QD32)	Performance 2,60 1,87 184,300 (4 145,900 (4 ndurance and Reliability 1,536 >2,000,00	960 GB 00 70 K, QD32) K, QD32)	- 120GB / 240 2, 1, 135,600 112,000	000 570 (4К, QD32) (4К, QD32)			
Optional SED Features Capacity  Sequential Read (MB/s) up to Sequential Write (MB/s) up to Random Reads IOPS up to Random Writes IOPS up to	AES 256-bit Encr 120 GB to 3, 3, 225,20 179,20 5,5i >2,000,0	yption, TCG Opal 2.0 o 1,920 GB  420 050 0 (4K, QD32) 0 (4K, QD32) Er B5 TB 000 hours  1.2 2280 Bare PCBA) 1280 with 8 mm heatsink)	Performance 2,60 1,87 184,300 (4 145,900 (4 145,900 (4 1,536 >2,000,00 Others 80.0 x 22.0 x 2.2	960 GB  70  K, QD32)  K, QD32)  TB  70 hours	- 120GB / 240 2, 1, 135,600 112,000	000 570 (4К, QD32) (4К, QD32)			
Optional SED Features Capacity  Sequential Read (MB/s) up to Sequential Write (MB/s) up to Random Reads IOPS up to Random Writes IOPS up to Reliability MTBF @ 25°C  Dimensions: L x W x H	AES 256-bit Encr 120 GB to 3, 3, 225,20 179,20 5,5i >2,000,0	yption, TCG Opal 2.0 o 1,920 GB  420 050 0 (4K, QD32) 0 (4K, QD32) Er B5 TB 000 hours  1.2 2280 Bare PCBA) 1280 with 8 mm heatsink)	Performance 2,60 1,87 184,300 (4 145,900 (4 ndurance and Reliability 1,536 >2,000,00	960 GB  70  K, QD32)  K, QD32)  TB  70 hours	- 120GB / 240 2, 1, 135,600 112,000	000 570 (4К, QD32) (4К, QD32) В ТВ 000 hours			

<sup>1</sup> Case Temperature, the composite temperature as indicated by SMART temperature attributes. 2 Under highest Sequential write value. May vary by density, configuration and applications.

Technologies & Add-On Services	S.M.A.R.T.	Hardware-based Power Loss Protection	AutoRefresh	Advanced Wear Leveling	Dynamic Data Refresh	End-to End Data Protection	Secure Erase	P TCG Opal 2.0	Signification industrial Temperature	Anti-Sulfur Resistors	Conformal Coating
Premium	0	0	0	0	0	0	<b>A</b>	0	0	<b>A</b>	<b>A</b>
Superior	0	0	0	0	0	0	<b>A</b>	0	<b>A</b>	<b>A</b>	<b>A</b>
Value	0	0	0	0	0	0	-	-	-	<b>A</b>	<b>A</b>

2 years

 $<sup>\</sup>blacktriangle$  : Customization option available on a project basis.

Hot Items Ordering Information							
Product Line	Capacity₁	Operating Temperature <sub>2</sub>	Power Loss Protection <sub>3</sub>	SED <sub>4</sub>	P/N		
N650Si	120GB	-40°C to 85°C	Hardware + Firmware Based	-	AF120GSTJA-8BCIP		
N650Si	240GB	-40°C to 85°C	Hardware + Firmware Based	-	AF240GSTJA-8BCIP		
N650Si	480GB	-40°C to 85°C	Hardware + Firmware Based	-	AF480GSTJA-8BCIP		
N650Si	960GB	-40°C to 85°C	Hardware + Firmware Based	-	AF960GSTJA-8BCIP		
N650Sc	120GB	0°C to 70°C	Hardware + Firmware Based	-	AF120GSTJA-8BCXP		
N650Sc	240GB	0°C to 70°C	Hardware + Firmware Based	-	AF240GSTJA-8BCXP		
N650Sc	480GB	0°C to 70°C	Hardware + Firmware Based	-	AF480GSTJA-8BCXP		
N650Sc	960GB	0°C to 70°C	Hardware + Firmware Based	-	AF960GSTJA-8BCXP		
N600Sc	120GB	0°C to 70°C	Hardware + Firmware Based	-	AF120GSTJA-8BAXP		
N600Sc	240GB	0°C to 70°C	Hardware + Firmware Based	-	AF240GSTJA-8BAXP		
N600Sc	480GB	0°C to 70°C	Hardware + Firmware Based	-	AF480GSTJA-8BAXP		
N600Sc	960GB	0°C to 70°C	Hardware + Firmware Based	-	AF960GSTJA-8BAXP		
N600Sc	1920GB	0°C to 70°C	Hardware + Firmware Based	-	AF1T92STJA-8BAXP		
N600Sc	120GB	0°C to 70°C	Firmware Based	-	AF120GSTJA-8BAXX		
N600Sc	240GB	0°C to 70°C	Firmware Based	-	AF240GSTJA-8BAXX		
N600Sc	480GB	0°C to 70°C	Firmware Based	-	AF480GSTJA-8BAXX		
N600Sc	960GB	0°C to 70°C	Firmware Based	-	AF960GSTJA-8BAXX		
N600Sc	1920GB	0°C to 70°C	Firmware Based	-	AF1T92STJA-8BAXX		
N600Vc (M.2 NVMe 2280)	120GB	0°C to 70°C	Firmware Based	-	AF120GSTJA-DBCXX		
N600Vc (M.2 NVMe 2280)	240GB	0°C to 70°C	Firmware Based	-	AF240GSTJA-DBCXX		
N600Vc (M.2 NVMe 2280)	480GB	0°C to 70°C	Firmware Based	-	AF480GSTJA-DBCXX		
N600Vc (M.2 NVMe 2242)	120GB	0°C to 70°C	Firmware Based	-	AF120GSTJC-DBBXX		
N600Vc (M.2 NVMe 2242)	240GB	0°C to 70°C	Firmware Based	-	AF240GSTJC-DBBXX		
N600Vc (M.2 NVMe 2242)	480GB	0°C to 70°C	Firmware Based	-	AF480GSTJC-DBBXX		
N600Vc (M.2 NVMe 2242)	960GB	0°C to 70°C	Firmware Based	-	AF960GSTJC-DBBXX		

<sup>1</sup> Amount of actual usable storage that can be utilized.

Product spec and its related information are subject to change without advance notice. Please refer to <u>www.atpinc.com</u> for latest information

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ATP JAPAN

 $<sup>{\</sup>tt 2~Refers~to~Case~Temperature~range~during~device~operation,~as~indicated~by~SMART~temperature~attributes.}\\$ 

<sup>3</sup> Hardware + Firmware-based power loss protection design with Level 4 (data-in-flight) protection; Firmware-based power loss protection design with Level 1 (data-at-rest) protection.

4 Allows data written to and read from the SSD to be constantly and automatically encrypted and decrypted. Conforms to TCG Opal 2.0 and uses AES 256-bit HW encryption.